

Spaceport News

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Bird team clears path for Discovery

By Linda Herridge
Spaceport News

Birds fly where they will and there's no way to predict when one or more might strike the space shuttle during launch or landing. To reduce the chances, Kennedy Space Center makes use of several bird-deterrent methods.

As Discovery touched down at 3:13 p.m. EDT on March 28, and glided to a stop at Kennedy's Shuttle Landing Facility, or SLF, the EG&G team felt a sense of accomplishment in creating the safest environment possible for its return.

According to Ron Feile, EG&G air traffic controller, NASA's Space Shuttle Program mandates that NASA has a hazard management plan. The SLF plan includes the use of pyrotechnics, propane cannons and bird-watch activities.

About five hours before Discovery's first landing opportunity, several EG&G workers were stationed at the SLF's Landing Aids Control Building, the control tower and at the runway overrun area monitoring bird activity.

Air traffic controller Vaden DeJarnette said that large flocks of birds can be detected on radar as they fly over or around the SLF.

"We mostly rely on communications from the bird-watcher and our own visual confirmation," DeJarnette said.

Flying in the Shuttle Training Aircraft, Chief



NASA/Kevin O'Connell

Space shuttle Discovery touches down on Runway 15 at Kennedy Space Center, completing the 13-day, 5.3-million mile journey of the STS-119 mission to the International Space Station. Main gear touchdown was at 3:13:17 p.m. EDT. Nose gear touchdown was at 3:13:40 p.m. and wheelstop was at 3:14:45 p.m.



NASA/Troy Cryder

EG&G's Bob Smith fires a shotgun loaded with blanks in an attempt to scare large flocks of birds away from the runway at Kennedy Space Center's Shuttle Landing Facility.

Astronaut Brent Jett communicated runway conditions, including weather, wind and bird concerns back to the Discovery crew. Inside the control tower, EG&G air traffic controller Donny Linton monitored the runway for birds and kept in touch with bird-watcher Bob Smith, who was stationed in a specially-equipped truck

on the ground.

Smith fired shotguns and pistols loaded with blanks to scare large flocks of birds away from the runway. From time to time, he would sound a special siren from his truck or use a remote control to set off cannons.

A series of 25 liquid propane cannons, placed in strategic locations along the east and west sides of the SLF runway, are controlled by air traffic controllers in the tower and remotely by bird-watchers in the field. These cannons, installed in September 2007, are fired randomly by zone, individually or all at once. Each rotates in a 360-degree pattern for the greatest effect.

Bird-watcher Kurt Asche said that Ospreys have tried to build nests

in the landing facility's Mate/Demate Device and that it's a popular hangout for vultures.

"The bird threat can come from any direction, at any time, day or night," Asche said. He also said shooting blanks at birds requires timing.

"There are times not to shoot at them. You don't want a flock of birds flying around as the shuttle is landing," Asche said.

Feile said the SLF team also monitors bird activity when crews are at the center for Shuttle Training Aircraft practice.

"It gets more interesting during the winter months with the addition of migratory birds from the north," Feile said. "It's just the nature of doing business on a wildlife refuge."

Final Ares I-X segments arrive at Kennedy via train

By Steven Siceloff
Spaceport News

For years, Grady McCoy has supervised the NASA Railroad as space shuttle booster segments were hauled across the Indian River to Kennedy Space Center. March 19, he watched over the first booster segments destined for the agency's new rocket.

The four segments will make up the first stage of the Ares I-X rocket, NASA's new design to take over for the space shuttle and carry astronauts to the International Space Station and into Earth orbit to begin moon missions. Ares I-X is the first flight test of the new launcher.

The rest of the Ares I-X vehicle already is being assembled inside Kennedy's Vehicle Assembly Building. Most of the rocket is made up of heavily instrumented weight simulators that will be stacked atop the booster to give it the look and flight characteristics of the operational Ares I-X.

During the test later this year, the first stage, made up of the four segments McCoy watched traverse the



NASA/Kim Shiflett

The NASA Railroad train hauls cars carrying the Ares I-X motor segments and nozzle exit cone over a river bridge to Kennedy Space Center. The four reusable motor segments and the nozzle exit cone, manufactured by the Ares I first-stage prime contractor Alliant Techsystems Inc., or ATK, departed Utah on March 12 for the seven-day, cross-country trip to Florida.

rails, will loft the rocket into the skies over the Atlantic Ocean to find out how the design will work.

"It's pretty exciting that the NASA Railroad is getting into the next program with Constellation," McCoy said.

The rocket segments were fueled at the Alliant Techsystems, or ATK, facility in Utah before being loaded aboard special

rail cars and hauled by the Florida East Coast Railway to Mims, Fla., where the NASA locomotive took over.

Jon Cowart, Kennedy's deputy mission manager for Ares I-X, made part of the trip with the booster segments.

"The team's been working many years to get to this point," Cowart said. "When you get the last of the hardware here, it really energizes

the folks and they begin to think this thing really could happen. It becomes that much more real."

The booster segments will go through the same well-practiced preparations that shuttle boosters go through. Then, the Ares I-X segments will be stacked inside the Vehicle Assembly Building and the simulated stages will be bolted onto the top. The rocket will

stand higher than 320 feet when it is complete.

The rocket will be rolled out to Kennedy's Launch Pad 39B for liftoff from one of the launch platforms that was used by the shuttle program.

"I never would have envisioned that when I was flying shuttle," said Charlie Precourt, a former astronaut who is now vice president of Space Launch Systems for ATK.

Precourt has a history with some of the booster segments that Ares I-X will use. The booster segments get reused, and some of the pieces made up the boosters that carried Precourt into space.

"This hardware launched me into space three times, three of the four times I flew," Precourt said.

If the Ares I-X flight test works as engineers expect it to, the booster segments that lifted the shuttles will keep lifting astronauts into space.

"I have every faith this is a great design," Cowart said. "Shuttle was fantastic and great and does all kinds of incredible things, but we've got to move on to the next thing."

Spaceport hosts much-anticipated Family Day on April 18

Kennedy Space Center, Cape Canaveral Air Force Station and contractor employees are invited to attend the 2009 Family Day on April 18.

Friends and family can participate from 9 a.m. to 3 p.m., but gates will close at 2:30 p.m. Kennedy and CCAFS will allow self-guided tours of designated areas and badged employees can escort guests throughout the day's activities.

The Visitor Complex's main campus will be open throughout the day, free to employees who bring their badge to the will-call booth.

More online

For more information on 2009 Family Day, as well as specific areas of interest for children, visit: <http://familyday.ksc.nasa.gov/>

Access to the complex includes IMAX movies, the Shuttle Launch Experience and entrance into the Astronaut Hall of Fame.

Kennedy is anticipating special guest appearances by active NASA astronauts who will be available to sign autographs and meet with

guests at specific facilities and times.

Cafeterias in the following areas will be open for employees and guests from 10 a.m. to 3 p.m.: Multi-Function Facility in the Launch Complex 39 area; the Space Station Processing Facility and Operations and Checkout Building in the Industrial Area.

The snack bar in the Launch Control Center will be open from 9 a.m. to 3 p.m. There also will be three mobile refreshment trailers open from 10 a.m. to 3 p.m. in the Launch Complex 39 area.

NASA Exchange stores will be open for souvenirs, T-shirts and complimentary Family Day collectors' coins.

The Operations and Checkout Mission Briefing Room will host educational exhibits displayed by NASA and contractor organizations. On the cape side, Hangar T will host exhibits and activities for children.

The Space Museum at CCAFS will be open for guests to gain firsthand insight into the history of space exploration that began on Florida's Space Coast.



NASA/Kim Shifflett

Mobile Launcher Platform-1, or MLP-1, on its way to Launch Pad 39B at Kennedy Space Center atop a crawler-transporter. The Space Shuttle Program gave the launcher to the Constellation Program for its Ares I-X flight test, targeted for the summer of 2009. The launcher moved to the launch pad for ground control hardware testing with equipment in Launch Control Center Firing Room 1. Following testing, MLP-1 will move to the Vehicle Assembly Building's High Bay 3 to begin stacking with Ares I-X.

Constellation Program gets hands on MLP-1

The handover of Mobile Launcher Platform-1 from NASA's Space Shuttle Program to the Constellation Program at a Kennedy Space Center ceremony on March 25 is the next step in returning people to the moon and exploring beyond.

The 4,625-ton, two-story steel structure will be modified for the first test flight of NASA's next-generation spacecraft and launch vehicle system. The Ares I-X flight test, which is targeted for launch this summer, will provide important data for developing Ares I and support a critical design review next year.

"It truly is a historic day to be turning over a major piece of hardware from one manned spaceflight program to another," Shuttle Launch Director Mike Leinbach said. "It really doesn't happen very often."

MLP-1 holds special memories for Leinbach, considering it has taken part in 51 shuttle launches -- more than NASA's other two launchers. Its rich history also includes five Apollo launches, including four that put humans on the moon.

It's the first mobile launcher platform to support space station,



NASA/Kim Shifflett

Shuttle Launch Director Mike Leinbach speaks to the employees and media during the handover ceremony for Mobile Launcher Platform-1 near Kennedy Space Center's Launch Pad 39B. Also participating in the ceremony are, left, Rita Willcoxson, director of Launch Vehicle Processing at Kennedy, right, Pepper Phillips, director of the Constellation Project Office, and (not visible) Brett Raulerson, manager of MLP operations with United Space Alliance.

Apollo, Space Shuttle and Constellation programs.

The launch platform had just been used on March 15 to launch space shuttle Discovery on its STS-119 mission to the International Space Station.

After Leinbach shared some history of the launcher, the banner that read "Go Discovery" was changed to "Go Ares I-X" to reflect its new mission with the Constellation Program.

"We are excited to have this mobile launcher platform turned over to us," said Pepper Phillips, director of the Constellation Project

office. "This is a real enabler for us."

Constructed in the mid-'60s, Mobile Launcher-3, or ML-3, originally was used for transporting and launching the Saturn V rocket for Apollo lunar landing missions. ML-3 was modified from 1975-79 for use in shuttle operations and was renamed Mobile Launcher Platform-1, or MLP-1.

In support of the transition, United Space Alliance, Lockheed Martin and NASA collaborated to simplify design plans and capitalize on previous shuttle upgrades and existing infrastructure.

The first modifications for MLP-1 began in May 2008, with the installation of 20 water bag cleats to the platform's right-hand solid rocket booster hole, which will prevent any possible acoustic damage to the rocket during liftoff. In December 2008, the ground control system hardware, which controls the ground equipment for checkout and launch, was installed onto MLP-1.

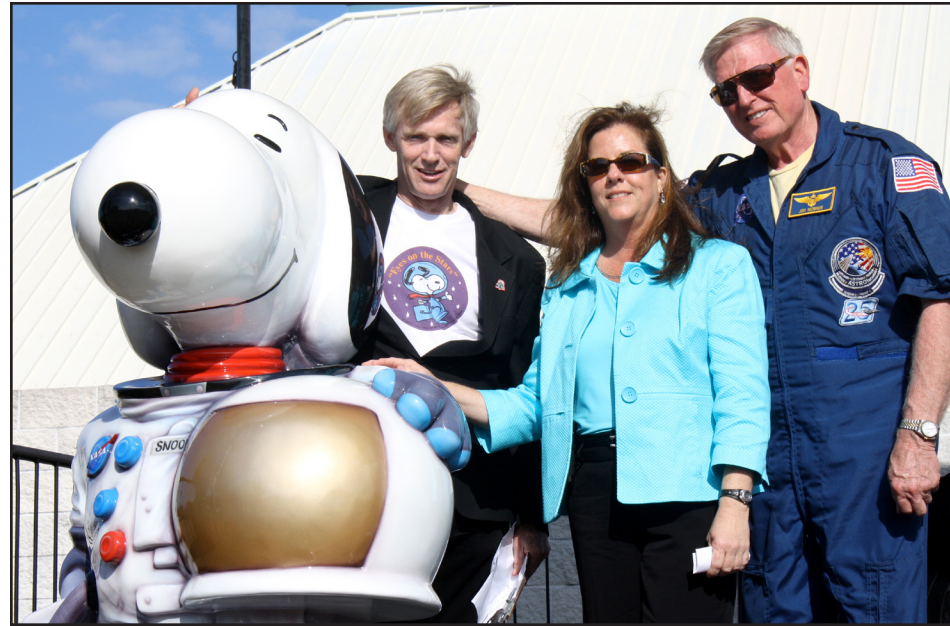
Next, MLP-1 will undergo ground control hardware testing at Kennedy's Launch Pad 39B. Upon completion, the platform will move to the Vehicle Assembly Building's High Bay 3 to begin its stacking with Ares I-X.

During the handover ceremony, Brett Raulerson, United Space Alliance manager for MLP operations, received a commemorative plaque that will be hung in the MLP shop. An identical plaque also will hang in Kennedy's Launch Control Center.

"This MLP is the workhorse of the fleet," Raulerson said. "It's exciting to know it's going to support three (space) programs before it is finished."

Following the Ares I-X flight test, MLP-1 will be disassembled.

Scenes around Kennedy Space Center



NASA

Craig Schulz, son of the late Charles Schulz, who created the Peanuts comic strip, and his family dedicated the statue of Snoopy in his spacesuit to the Kennedy Space Center Visitor Complex to commemorate NASA's 50th Anniversary. The ceremony included remarks by Schulz, Chief of Kennedy's Public Services Division Pam Steel and astronaut Jon McBride.



NASA/Jim Grossmann

STS-128 crew members look over packages of equipment that they'll use during their mission in the Space Station Processing Facility at Kennedy Space Center. From left, are Pilot Kevin Ford, Commander Rick Sturckow and Mission Specialists Christer Fuglesang and John "Danny" Olivas. The STS-128 flight will carry science and storage racks to the International Space Station aboard space shuttle Discovery. Launch of Discovery is targeted for Aug. 6.

Spaceport News wants to know about your special talent

If you have a hidden talent or an interesting hobby, Spaceport News would like to share it. Send your information to **KSC-Spaceport-News@mail.nasa.gov** or mail it to Spaceport News at: IMCS-440, Kennedy Space Center, FL 32988.



Photo courtesy of Holly Kicks

Team 233 took home first place at the FIRST Florida Regional Robotics Competition along with their alliance partners, Team 179 from Riviera Beach, Fla., and team 1649 from Windermere, Fla.. More than 40 students from Cocoa Beach Jr./Sr. High, Rockledge High and Viera High make up Team 233, which also won the Regional Engineering Inspiration Award. With the win, Team 233 will compete in the FIRST championship April 13, in Atlanta, Ga. Gia Roche and Jordan Hicks of Team 233 sang the national anthem at the opening ceremony of the regional competition.

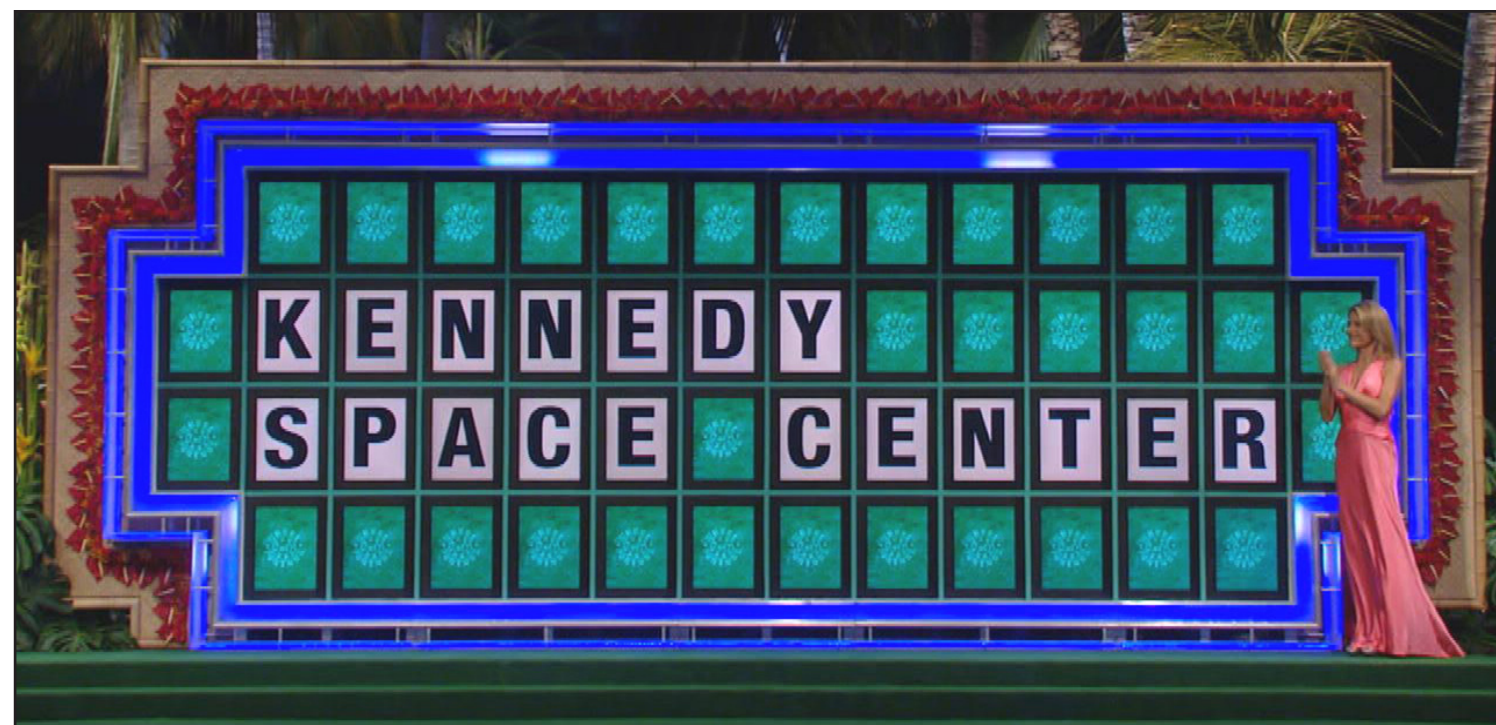


Photo courtesy of Carol Kaelson

Kennedy Space Center is shown on the game show "Wheel of Fortune" puzzle board as a toss-up puzzle on a broadcast Nov. 7, 2008. This show was taped during "Hawaii's Big Island Week."

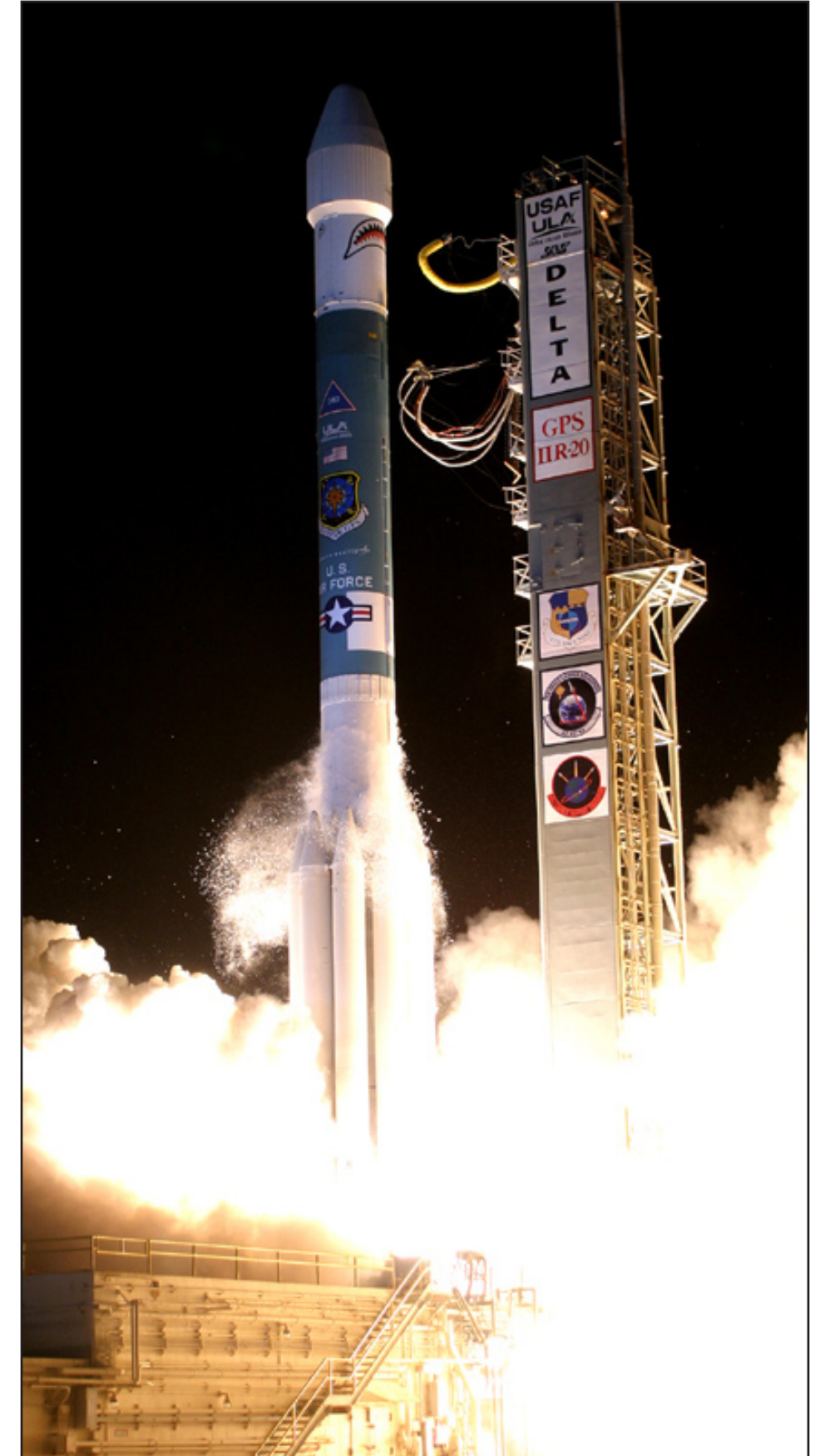


Photo courtesy of Carleton Bailie/United Launch Alliance

A United Launch Alliance Delta II rocket carrying the U.S. Air Force's GPS IIR-20 satellite lifts off from Cape Canaveral Air Force Station's Space Launch Complex-17A at 4:34 a.m. EDT on March 24. After a one-hour, eight-minute flight, the 47th successful global positioning system satellite launched by a Delta II achieved orbit supporting the nation's military operations and commercial applications throughout the world.

Wisconsin trio shares Dream Job Experience

Dare to dream. It's a phrase found in mission statements, speeches and on wall posters around the country.

In November 2008, the NASA education offices at Johnson and Kennedy Space Centers took that inspirational phrase a step further by partnering with *Seventeen* magazine, offering a three-day "Dream Job Experience" to two deserving students and a teacher.

NASA astronaut Daniel Tani announced the Kennedy winners Feb. 12, at Lake Mills High School, in Lake Mills, Wis. They were Jeanne Nye and two of her former students at Lake Mills Middle School; Evelyn Libal, 17, and Nicholas Kreuziger, 16.

"I was looking for scholarship opportunities and I stumbled on this contest," Kreuziger said, "And Mrs. Nye knew exactly who we needed to join us."

Teams of teachers and students around the country filled out a set of short-answer questions and wrote essays, vying for the experience. The pool of applicants was narrowed down to five teams and those finalists participated in an in-depth phone interview with a panel from Kennedy's Education Office.

Nye believes Libal's answer to a difficult math question helped them win the experience, which took place here at Kennedy March 25-27.

Libal says she someday wants to work for the non-profit organization Heifer International, creating alternative ways to feed communities.

She hopes her education might somehow translate to her finding a way to sustain a community in space.

"If you want to make



NASA/Jim Grossmann

Kennedy Space Center Dream Job Experience winners toured facilities March 25-27. From left, Evelyn Libal, 17, Nicholas Kreuziger, 16, and Jeanne Nye traveled from Lake Mills, Wis. The trio is shown learning about heat tiles in Orbiter Processing Facility-2. The contest was a combined effort of the NASA Education offices at Johnson and Kennedy Space Centers and *Seventeen* magazine.

a station on the moon, it would be intelligent to make it self-sustaining," Libal said. "I would love to help develop stuff like that and eventually take it to the people on Earth who need it."

The winners of the once-in-a-lifetime opportunity got to learn firsthand about NASA's missions, received behind-the-scene tours of Kennedy's launch facilities, and learned about current and future aerospace and engineering careers.

"I had never seen a building like the Vehicle

Assembly Building before," Kreuziger said. "Being afraid of heights . . . I said 'this is a nice view' . . . but I didn't want to look down."

Kreuziger, who plans to attend the University of Wisconsin - Madison, says he sees himself working for NASA someday.

"(Workers) are genuinely excited and passionate... and excited about what they are doing here at Kennedy," Kreuziger said. "How many people can say they are holding a job they are actually excited about going to everyday? It's pretty

amazing."

Nye, who jokes she's of no relation to Bill Nye the Science Guy, teaches science to seventh and eighth graders.

"I didn't expect to teach science, but I had to figure out how find a way to be around people and spend time in a lab," Nye said. "My mom told me I should be a teacher, and at first I said no way . . . look at me now."

This opportunity gives NASA exposure to young adults because the national magazine has a monthly

readership of 13 million. Its Web site has about 28 million page views monthly.

Through the winners' blog and photos, as well as follow-up articles, *Seventeen* will be able to connect their readers with an inside perspective of NASA's human spaceflight program and also present positive role models and messages to their readers.

"My science education became an important aspect of school when the man first got on the moon," Nye said. "I'm sure that's why I'm here at Kennedy today."

Remembering Our Heritage

Preparations for lunar missions 'heat up' in 1964

By Kay Grinter
Reference Librarian

To support President John F. Kennedy's decision to show the world American technical prowess was marching "full steam ahead," NASA launched two spacecraft back-to-back in April 1964, qualifying and testing new technology.

The first orbital test of a preproduction Gemini spacecraft atop a Titan II rocket, or GT-1, lifted off Cape Canaveral Air Force Station's Pad 19 on April 8, followed by the launch of the Apollo Program's first Flight Investigation Re-entry Environment, or FIRE, experiment from Pad 12 on April 14.

The mechanics of rendezvous and docking became one of Project Gemini's most important objectives when lunar-orbit rendezvous was chosen for the Apollo mission mode.

GT-1 tested the structural integrity of the spacecraft to determine it could withstand the vibration and acceleration loads imposed on it by the Titan booster. The mission's objectives did not require separation of the spacecraft from the second stage or its recovery.

NASA alumnus Roelof "Ralph" Schuiling hired on with NASA in 1961 after Mercury's suborbital flights, and was an operations engineer assigned to the Gemini spacecraft.

"They were called 'spacecraft' rather than capsules because they could be maneuvered," Schuiling said. "The Mercury Project's systems were in the capsule. The Gemini spacecraft had a service module that fell away before re-entry.

"Following the Mercury Program, the Gemini



NASA file/1963

A truncated cone resembling a small Apollo command module was fitted with a heat shield to the FIRE spacecraft to test re-entry temperatures for future Apollo missions. An Atlas-Antares launch vehicle propelled the spacecraft back to Earth at 25,000 mph on April 14, 1964.

spacecraft seemed large by comparison. It was like going from a Volkswagen to a station wagon."

The way the launch vehicle was handled on the pad also changed.

"The tower on Pad 19 lay down on its side for arrival and erection of a Titan, and Gemini was NASA's only program to use this approach," Schuiling said. "It was weird to see it happening."

Meanwhile, on Pad 12,

preparations for the FIRE 1 mission were "heating up." NASA needed a fuller understanding of the complex physical and chemical changes that occur when a spacecraft plunges into the atmosphere at speeds matching those of a lunar mission return. For Project FIRE, a cone resembling a small Apollo command module was fitted with a heat shield.

FIRE was the only NASA project that utilized



NASA/Cory Huston

NASA alumnus Roelof "Ralph" Schuiling, who was an operations engineer assigned to all the Gemini spacecraft, stands next to the Gemini-Titan 2 spacecraft on display March 27, in the U.S. Air Force Space and Missile Museum on Cape Canaveral Air Force Station.

an Atlas-Antares launch vehicle configuration. The Antares velocity package separated from the Atlas booster about five minutes after launch. The Antares stage then propelled the experiment back toward Earth at a velocity of 25,000 mph. Splashdown was near Ascension Island in the South Atlantic.

The blunt end of the cone contained three beryllium calorimeters, instrumented with thermocouples interleaved with three phenolic asbestos ablative heat shields. All but the last two layers were designed to burn away or be jettisoned during a 45-second high-heating re-entry period.

Readings on the heating phenomena were taken during the earliest portion of re-entry, at the peak and near the end of the heating period.

In addition to the onboard sensors, information also was gathered from Ascension Island with a telespectrograph, a light-gathering telescope, and from visual observations by scientists on the island.

FIRE 1 had an unusu-

ally long seven-hour launch window. Liftoff was plagued by several days of intermittent cloudy weather at Ascension Island before it finally came on April 14.

NASA alumnus Harold Zweigbaum was chief of operations for the Atlas-Agena launch vehicle and assumed responsibility for the Atlas-Antares launch.

"FIRE launches were the most frustrating launches in my career because there had to be a lack of cloud cover at the expected re-entry area," Zweigbaum said. "From the time we launched to the time it re-entered, we had to be sure the clouds would not interfere with the visual documentation."

Both successful missions provided data important to NASA's goal to land a man on the moon and return him safely home.

The GT-2 spacecraft, virtually identical to that of GT-1, was recovered following a re-entry test in January 1965, and is on display in the U.S. Air Force Space and Missile Museum on Cape Canaveral Air Force Station.

NASA Employees of the Month: April



NASA/Kevin O'Connell

Employees of the Month for April are, from left: Teresa Lawhorn, Applied Technology Directorate (Employee of the Quarter); Susan Danley, Engineering Directorate; Jeffrey Sampson, Engineering Directorate; Angela Solorio, Safety & Mission Assurance Directorate; Clara Blakeley, Chief Financial Office; David Schultz, Launch Vehicle Processing Directorate; Mary Neptune, Launch Services Program; Lisa Stephany, Human Resources Office (Employee of the Quarter); and Kenneth Whitt, Center Operations. Not pictured are, Trung Nguyen, Information Technology & Communications Services; and Jennifer Horner, External Relations (Employee of the Quarter).

Looking up and ahead

No earlier than April 3	Launch/CCAFS: Atlas V, WGS SV-2; 8:31 p.m.
No earlier than April 28	Launch/CCAFS: Delta IV, GOES-O; 6:24 p.m.
No earlier than May 5	Launch/VAFB: Delta II, STSS-ATRR; TBD
Target May 12	Launch/KSC: Atlantis, STS-125; 1:11 p.m.
Target May 23	Landing/KSC Shuttle Landing Facility: TBD
No earlier than May 21	Launch/CCAFS: Atlas V, LRO/LCROSS; 5:32 p.m.
June	Launch/CCAFS: Falcon 9; TBD
Target mid-June	Launch/KSC: Endeavour, STS-127; TBD
No earlier than June 16	Launch/CCAFS: Delta II, STSS Demo; TBD
No earlier than July 8	Launch/CCAFS: Delta IV, WGS SV-3; TBD
Target July 11	Launch/KSC: Ares I-X flight test/ Launch Pad 39B; TBD
Target Aug. 6	Launch/KSC: Atlantis, STS-128; TBD
No earlier than Aug. 14	Launch/CCAFS: Delta II, GPS IIR-21; TBD
No earlier than Sept. 29	Launch/CCAFS: Delta IV, GPS IIF-1; TBD
No earlier than Oct. 1	Launch/VAFB: Taurus, Glory; TBD
No earlier than Oct. 14	Launch/CCAFS: Atlas V, SDO; TBD
No earlier than Nov. 1	Launch/CCAFS: WISE; TBD
Target Nov. 12	Launch/KSC: Discovery, STS-129; TBD
No earlier than Nov. 12	Launch/CCAFS: Delta IV, GOES-P; TBD
December	Launch/CCAFS: Atlas V, Commercial Payload; TBD
Target Dec. 10	Launch/KSC: Endeavour, STS-130; TBD
Target Feb. 11, 2010	Launch/KSC: Atlantis, STS-131; TBD
Target April 8, 2010	Launch/KSC: Discovery, STS-132; TBD
Target May 31, 2010	Launch/KSC: Endeavour, STS-133; TBD
No earlier than 2011	Launch/CCAFS: Atlas V, Mars Science Laboratory; TBD

WORD ON THE STREET

Japanese astronaut Koichi Wakata recently took up ramen noodles and egg drop soup to the International Space Station. If you could choose, what food would you take to eat?



"Pizza from Pizza Hut. I really don't eat that much pizza anymore. Maybe they'll deliver it."
Roger Mathews,
with NASA

"I'm afraid I'd have to take up chocolate-anything. I am a chocoholic. I simply love chocolate."

Beth Smith,
with NASA



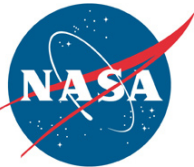
"Carrabba's minestrone soup, sirloin marsala, fettuccine alfredo and my mom's tiramisú."
Randall Crosby,
with Division of Blind Services

"Peanut butter and jelly sandwiches. I ate them from first grade all the way to high school."

Bobby Crocker,
with Yang Enterprises Inc.



"I'd probably go with a Quiznos' sub . . . turkey or Philly steak . . . they're toasted and really good."
Jeff Wallace,
with NASA



John F. Kennedy Space Center

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Spaceport News is an official publication of the Kennedy Space Center and is published on alternate Fridays by External Relations in the interest of KSC civil service and contractor employees.

Contributions are welcome and should be submitted **three weeks** before publication to the Media Services Branch, IMCS-440. E-mail submissions can be sent to **KSC-Spaceport-News@mail.nasa.gov**

Managing editor Candrea Thomas
Editor Frank Ochoa-Gonzales
Copy editor Rebecca Sprague

Editorial support provided by Abacus Technology Corp. Writers Group.
NASA at KSC is on the Internet at www.nasa.gov/kennedy
USGPO: 733-049/600142